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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,143	09/22/2005	John Harold Flexman	WRA0010-US	3193

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PAUL, HASTINGS, JANOFSKY & WALKER LLP
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Washington, DC 20005

EXAMINER

FETZNER, TIFFANY A

ART UNIT	PAPER NUMBER
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2859

MAIL DATE	DELIVERY MODE
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11/29/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/519,143	Applicant(s) FLEXMAN ET AL.	
	Examiner Tiffany A. Fetzner	Art Unit 2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 02 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,3,7-14 and 18-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,3,7-14 and 18-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 April 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Final Rejection

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The examiner approves the newly added and amended drawings submitted April 2nd 2007. The examiner notes that there are now 9 sheets of drawings and 14 total figures in the instant application.

Specification

3. The objections to the disclosure from the last office action are rescinded in view of the amendments to the specification made in the April 2nd 2007 amendment and response.

Newly added claims

4. The **newly added claims 18-24** are considered to be free of new matter, because they are restatements of the canceled claims in independent form, or are a restatement of a limitation, which depends from a claim that has now been written in independent form, No new matter was added by applicant's April 2nd 2007 amendments.

Response to Arguments

6. Applicant's arguments filed April 2nd 2007 have been fully considered but they are not persuasive. Applicant's claims do not require the NMR or Electron resonance in the body of the claims. The NMR and Electron resonance is intended use. Applicant's claims and specification only set forth a switch, and the type of switch, is already known. The ability to use the known switch, in an NMR situation is obvious because switching one high frequency environment switch with another high frequency environment switch is an obvious design choice. The claims are broader than the embodiment disclosed by applicant, and the lack of requiring NMR and electron resonance, enables applicant's claims to be fully met by the prior art, as set forth below. Applicant may feel free to contact the examiner for a telephonic interview if further explanation is desired .

Claim Rejections - 35 USC § 102

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7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Component **Claims 2-3, 24** and corresponding **method claim 14** are **Finally** rejected under **35 U.S.C. 102(b)** as being anticipated by **Kim et al.**, US patent 6,291,994 B1 issued September 18th 2001.

2. With respect to **Claim 2**, and its corresponding method **claim 14**, **Kim et al.**, teaches and shows, "A low equivalent series resistance (ESR) switch" [See component 10 and its associated components of figure 1, See also the ESR switch taught from col. 14 line 6 through col. 18 line 4] "for selectively adding" [See col. 7 lines 50-60; col. 8 lines 7-35; col. 19 line 54 through col. 20 line 3; the abstract, col. 4 lines 31-33; and col. 5 lines 54-58.], "to a coil-capacitor circuit of a nuclear or electron resonance system" [See figure 1, col. 1 lines 10-16, col. 14 line 6 through col. 20 line 3, and col. 13 lines 17-20], "the switch comprising a pair of physically and electrically contacting members" (i.e. the terminals of each of the contact points that the MOSFET switch of figure 1 connect to.), comprising a pair of contact surfaces [See figure 1] and "having mutually large contact surface areas", (i.e. see figure one where each contact point is located at the end of a surface of extended electrical component length in the form of a connecting wire.) "said members" (i.e. the terminals of each of the capacitor contact points that the MOSFET switch of figure 1 connect to), "being movable" (i.e. via the connecting / disconnecting switches of figure 1) "between a quiescent position" (i.e. an off or inactive position) "where the contact surface areas are separated by a small distance" [See the gap when the auto-tune relay switches and capacitors are in the "open" switch position], "and an active position" [See figure 1 where the switches are in contact with the terminal end of the relay and the capacitor] "where the contact surface areas" (i.e. the electrical contact points of the MOSFET semi-conductor switches of figure 1) "are brought into physical and electrical contact with each other to connect into the coil-capacitor circuit." [See the examples of the two active, "closed", "in contact"]

(i.e. in contact shows a mechanical, physical and electrical connection) auto tune and relay capacitors shown in figure 1.]

3. With respect to **Amended Claim 3, Kim et al.**, teaches and shows, an "actuating means" (i.e. the stepper motor of col. 12 line 54 through col. 13 line 3) "to move said contacting members" (i.e. via the switch component of the MOSFET switches of figure 1, col. 15 line 1, and col. 17 lines 8-53) between said quiescent position" (i.e. an off or inactive position) "and said active position" (i.e. the connecting closed position). ." [See the examples of the two active, "closed", "in contact" auto tune and relay capacitors shown in figure 1, as well as the "open" switch of figure 1 component 10 in the auto tune and relay capacitors section.] The same reasons for rejection, which apply to **claim 1** also apply to **claim 3** and need not be reiterated.

4. With respect to **New Claim 24 Kim et al.**, teaches and shows, "In a coil-capacitor circuit of a nuclear or electron resonance system", [See figure 1, col. 1 lines 10-16, col. 14 line 6 through col. 20 line 3, and col. 13 lines 17-20] "a low equivalent series resistant switch" [See the ESR switch taught from col. 14 line 6 through col. 18 line 4] "selectively added thereto" [See col. 7 lines 50-60; col. 8 lines 7-35; col. 19 line 54 through col. 20 line 3; the abstract, col. 4 lines 31-33; and col. 5 lines 54-58.] as claimed in claim 2. [See the **rejection of claim 2** which need not be reiterated.]

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. **Claims 7-11** are rejected under **35 U.S.C. 103(a)** as being unpatentable over **Kim et al.**, US patent 6,291,994 B1 issued September 18th 2001; as applied to **claims 1-3 and 14** above, and further in view of **Pitzen et al.**, US patent 5,792,572 issued August 11th 1998, with respect to the conventional type of materials from which electrical contact members are constructed, and the reasons behind the specific selection of these materials for the manufacturing of those contact members, which are well known, and well established features.

9. With respect to **Amended Claim 7**, **Kim et al.**, lacks directly teaching that "said contacting members are coated with a metal to prevent corrosion and carbonization of the surface thereof". However, **Pitzen et al.**, teaches this limitation with respect to electrical contact members. [See **Pitzen et al.**, col. 7 lines 45-55; col. 10 lines 3-11.] It would have been obvious to one of ordinary skill in the art at the time that the invention was made to modify the teaching of **Kim et al.**, with the teaching of **Pitzen et al.**, because the use of a coating on an electrical contacting component to prevent corrosion and carbonization of the surface thereof, is well known, since electrical circuits are not always easy or cheap to manufacture or "re-manufacture", in case the component breaks or burns out, therefore the use of measures to protect the contacts from becoming damaged or destroyed is common place in the electrical arts. The same reasons for rejection, and obviousness that apply to **claims 2, 3, and 14** also apply to **claim 7** and need not be reiterated.

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10. With respect to **Amended Claims 8 through 11, Kim et al.**, lacks directly teaching that "said contacting members are made or coated with": "copper" (i.e. **claim 8**); "gold" (i.e. **claim 9**) "rhodium"; (i.e. **claim 10**) "silver"; (i.e. **claim 11**): However, **Pitzen et al.**, teaches these plating materials for electrical contact members. [See **Pitzen et al.**, col. 7 lines 45-55; col. 9 line 57 through col. 10 line 11; col. 11 lines 20-24.] It would have been obvious to one of ordinary skill in the art at the time that the invention was made to modify the teaching of **Kim et al.**, with the teaching of **Pitzen et al.**, because the use of specific types of coatings and platings of electrical contact members including the applicant's listing of coatings comprising "copper" (i.e. **claim 8**); "gold" (i.e. **claim 9**) "rhodium"; (i.e. **claim 10**) "silver"; (i.e. **claim 11**) are all well known and well-established electrical contact coatings that are conventionally used to prevent corrosion and carbonization of the contact members.] The same reasons for rejection, and obviousness that apply to **claims 2, 3, and 14** also apply to **claims 8 through 11** and need not be reiterated.

11. **New Claims 18-19 and claims 12-13** are rejected under **35 U.S.C. 103(a)** as being unpatentable over **Kim et al.**, US patent 6,291,994 B1 issued September 18th 2001; as applied to **claims 1-3 and 14** above, and further in view of **Kiuchi et al.**, US patent 4,114,009 issued September 12th 1978.

12. With respect to **New Claim 18 Kim et al.**, lacks directly teaching "guiding the contact surface areas between the quiescent position and the active position using a plurality of insulated guide rods", however **Kiuchi et al.**, shows in figure 10 a high frequency energy source with a high frequency gating circuit and a gate controlled switching circuit where switches 157d, 257d, 357d, and 457d are used to connect or disconnect a series of capacitors. [See col. 3 line 67 through col. 5 line 27] From figure 5 the cylindrical rod shaped lugs 50a, 50b, 50c, and 50d raise and lower the spring contacts 57a, 57c of figures 6a-6d and 7a-7d] It is also clear from figures 6d and 7d that there is a position in which the cylindrical contacting guide lugs which cause the circuits to be open or closed are isolated away from the contact spring 57a or 57c as shown in figures 6d and 7d]. It would have been obvious to one of ordinary skill in the art at the time that the invention was made to modify the teaching of **Kim et al.**, with the switch

typology of **Kiuchi et al.**, in order to easily switch in or out one or more parallel capacitor circuits, in a high frequency switching situation.

13. With respect to **New Claim 19 Kim et al.**, lacks directly teaching "a plurality of insulated guide rods to guide the contacting members in and between said quiescent position and said active position" However **Kiuchi et al.**, shows this limitation see figures 6a-d, and 7a-7d in combination with figures 5 and 10, and the respective description provided for these figures in the **Kiuchi et al.**, written description. It would have been obvious to one of ordinary skill in the art at the time that the invention was made to modify the teaching of **Kim et al.**, with the switch typology of **Kiuchi et al.**, in order to easily switch in or out one or more parallel capacitor circuits, in a high frequency switching situation, where there is more than two binary functional states of operation. The **Kiuchi et al.**, patent shows four operational states per switch.

14. With respect to **Claim 12**, both **Kim et al.**, and **Kiuchi et al.**, lack directly teaching that that ""said contacting members are made or coated with **mercury and are contained within a vessel which prevents the escape of the mercury**". However, mercury is a well known heat conductor which is a liquid at room temperature. That is why thermometers are often filled with mercury under pressure for the purpose of making temperature measurements. It is also known that exposure to mercury is dangerous to humans. Too much mercury exposure can result in mercury poisoning. Therefore mercury is often kept in a vacuum vessel to prevent humans from direct exposure to mercury. Additionally mercury is often used to coat electrical contacts because it conducts well and has a protective insulating effect on electrical components, so coating electrical contacts with mercury and enclosing those contacts in a vacuum vessel is not a novel or non-obvious use for mercury. Therefore, the addition of limitation 12 to claim 2 does not distinguish over the applied prior arts of **Kim et al.**, and **Kiuchi et al.**

15. With respect to **Claim 13**, both **Kim et al.**, and **Kiuchi et al.**, lack directly teaching that that "the entire low ESR switch as claimed in **claim 2**, is contained within a vacuum vessel." However, in situations where high frequency switching is occurring

fast, it is desirable to reduce any possible external heating due to the air friction during the switching process, so having the switch component located in a vacuum which would prevent air-friction external heating, is not a novel and non-obvious advance by itself, since the ability to locate switches in a vacuum to solve the potential air-friction problem is known.

16. **New Claims 20-23** are rejected under **35 U.S.C. 103(a)** as being unpatentable over **Kim et al.**, US patent 6,291,994 B1 issued September 18th 2001; as applied to **claims 1-3 and 14** above, and further in view of **Kiuchi et al.**, **US patent 4,114,009 issued September 12th 1978.**

17. With respect to **New Claim 20 Kiuchi et al.**, **shows** "A low equivalent series resistance (ESR) switch for selectively adding to a coil-capacitor circuit" [See figure 10] the phrase "of a nuclear or electron resonance system" in this claim is intended use and is not granted any patentable weight by the examiner, because the claim only requires the switch, the electron or nuclear resonance is not required to meet the body of new claim 20.), **Kiuchi et al.**, **shows** "the switch comprising a pair of physically and electrically contacting members" [See figures 5, 6a-6d, 7a-7d, and figure 10 components 56a contact 57a; components 57c contact 56c] "comprising a pair of parallel bars" (i.e. See figures 6a-6d and 7a-7d where the contacting members are located parallel to one another) "and having mutually large contact surface areas", [See figures 5, 6a-6d, 7a-7d], "said members being movable between a quiescent position where the contact surface areas are separated by a small distance and an active position where the contact surface areas are brought into physical and electrical contact to connect into the coil-capacitor circuit" [See figures 5, 6a-6d, 7a-7d, and figure 10 in combination with one another and col. 2 line 56 through col. 5 line 27.]

18. With respect to **New Claim 21 Kiuchi et al.**, **shows** "a plurality of insulated guide rods" (i.e. see 50a, 50c) "to guide the parallel bars" (i.e. 56a, 57a; or 56c, 57c) "in and between said quiescent position and said active position". [See figures 5, 6a-6d, 7a-7d, and figure 10 in combination with one another].

19. With respect to **New Claim 22 Kiuchi et al.**, **shows** "A low equivalent series resistance (ESR) switch for selectively adding to a coil-capacitor circuit" [See figure 10]

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the phase "of a nuclear or electron resonance system" in this claim is "intended use" and is not granted any patentable weight by the examiner, because the claim only requires the switch, the electron or nuclear resonance is not required to meet the body of new claim 22.), **Kiuchi et al., shows** "the switch comprising a pair of physically and electrically contacting members comprising a rotatable oval cross-section shaped rod disposed between two concave bars defining mutually large contact surface areas, said oval cross-section shaped rod being rotatable to an active position to physically and electrically connect with said concave bars and further rotatable to a quiescent position to physically and electrically disconnect from said concave bars". [See figures 5, 6a-6d, 7a-7d, and figure 10 in combination with one another and col. 2 line 56 through col. 5 line 27.]

20. With respect to **New Claim 23 Kiuchi et al., shows** "A low equivalent series resistance (ESR) switch for selectively adding to a coil-capacitor circuit" [See figure 10] the phase "of a nuclear or electron resonance system" in this claim is "intended use" and is not granted any patentable weight by the examiner, because the claim only requires the switch, the electron or nuclear resonance is not required to meet the body of new claim 22.), **Kiuchi et al., shows** "the switch comprising "a pair of physically and electrically contacting members comprising an elongated multi-pole switch" [See figures 7a-7d, 6a-6d, 5, figure 9] "having a pair of radially disposed and transversely spaced lugs and a pair of radial, externally mounted concave contacts, the lugs being rotatable relative to the contacts, whereby rotation of the switch to different angular positions allows different pairs of lugs to make physical and electrical contact with said contacts in discrete active positions, and also to disconnect the physical and electrical contact between said lugs and said contacts in discrete quiescent positions". [See figures 5, 6a-6d, 7a-7d, 9, and figure 10 in combination with one another and col. 2 line 56 through col. 5 line 27.]

21. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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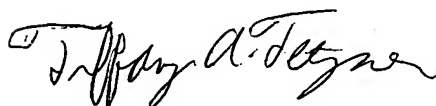
22. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

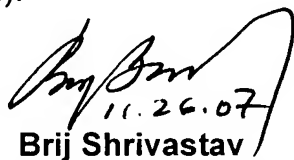
23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tiffany Fetzner whose telephone number is: (571) 272-2241. The examiner can normally be reached on Monday, Wednesday, and Friday-Thursday from 7:00am to 2:10 pm., and on Tuesday and Thursday from 7:00am to 5:30pm.

24. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Dean Reichard**, can be reached at (571) 272-1984. The **only official fax phone number** for the organization where this application or proceeding is assigned is **(571) 273-8300**.

25. Information regarding the status of an application may be obtained from the Patent Application information Retrieval (PAIR) system Status information for published applications may be obtained from either Private PMR or Public PMR. Status information for unpublished applications is available through Private PMR only. For more information about the PMR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PMR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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